

**Notice of Allowability**

Application No.

09/627,781

Examiner

Thien D. Tran

Applicant(s)

NAKAHARA ET AL.

Art Unit

2665

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/01/2005.
2. ☒ The allowed claim(s) is/are 1-7, 10-13, 25, 14-24, 26-35 renumbered as 1-33.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

## REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance:

Regarding claims 1, 12, 14, 19, 26, 28, 29, 30-35, the prior arts fail to teach or fairly suggest a method/system for transmitting an OFDM signal from a transmission side to a reception side or a method/system for receiving an OFDM signal from a reception side, wherein

a frequency response variation of a transmission path is compensated for by using a compensation vector calculated as a time series linear approximation from a difference in frequency response between any two pilot symbols closest to each other, in combination with other limitations as specified in the independent claims 1, 12, 14, 19, 26, 28, 29, 30-35.

Regarding claims 18, the prior arts fail to teach or fairly suggest an OFDM signal receiver for receiving, from a transmission side, an OFDM signal comprising at least one data symbol consisting of a plurality of subcarriers having data therein, and at least one pilot symbol including a plurality of subcarriers, at least one of the subcarriers having a frequency component predetermined in amplitude and phase, and being inserted before or after one or more data symbols, said OFDM signal receiver comprising:

a compensation vector calculator for calculating, after inputting the first and second pilot symbol transmission path frequency responses thereto, a compensation

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vector for compensating for the frequency response variation of a transmission path;  
and

a frequency response compensator for compensating for the frequency response of one or more data symbols after inputting the compensation vector, in combination with other limitation as specified in the independent claim 18.

Regarding claim 20, the prior arts fail to teach or fairly suggest an OFDM signal receiver for receiving, from a transmission side, an OFDM signal comprising at least one data symbol consisting of a plurality of subcarriers having data therein, and at least one pilot symbol including a plurality of subcarriers, at least one of the subcarriers having a frequency component predetermined in amplitude and phase, and being inserted before or after one or more data symbols, said OFDM signal receiver comprising:

a phase compensator calculates a compensation value for compensation, by referring to a first difference between a phase of a pilot symbol and a predetermined phase, and a second difference in phase between any two pilot symbols closest to each other, so that a phase of the received data symbol corresponds to the predetermined phase, in combination with other limitations as specified in the independent claim 20.

Regarding claim 24, the prior arts fail to teach or fairly suggest an OFDM signal receiver for receiving, from a transmission side, an OFDM signal comprising at least one data symbol consisting of a plurality of subcarriers having data therein, and at least one pilot symbol including a plurality of subcarriers, at least one of the subcarriers having a frequency component predetermined in amplitude and phase, and being

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inserted before or after one or more data symbols, said OFDM signal receiver comprising:

a phase compensation value calculator for calculating, after inputting a phase difference value calculated by said first pilot symbol phase difference calculator and the phase difference calculated by a pilot symbol phase difference calculator thereto, a phase compensation value for compensating for a at least one of the frequency drift and a residual phase error, in combination with other limitations as specified in the independent claim 24.

### ***Conclusion***

2. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Thien Tran whose telephone number is (571) 272-3156. The examiner can normally be reached on Monday-Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (571) 272-3155. Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197.

Patent Examiner

Thien Tran

**DUCHO  
PRIMARY EXAMINER**

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*10-3-05*